



Massachusetts Port Authority
One Harborside Drive, Suite 200S
East Boston, MA 02128-2909
Telephone (617) 568-5000
www.massport.com

August 1, 2014

Brona Simon
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, MA 02125

***Re: Project Notification Form – Proposed American Hangar Demolition
Boston Logan International Airport, East Boston, MA***

Dear Ms. Simon:

The Massachusetts Port Authority (Massport) is planning to demolish the former American Airlines Hangar located in the secured airport operations area (AOA) within the North Cargo area of Boston-Logan International Airport. As the attached Project Notification Form describes, this roughly 70,000 square foot (sf) hangar was designed for a different generation of aircraft and can no longer be used for its intended purpose of aircraft maintenance. In fact, the hangar's former user, American Airlines, relocated its remaining maintenance activities to a different Logan hangar in February of 2014, leaving the hangar used only for limited equipment storage.

The hangar is proposed for demolition for several reasons. First, the hangar is not adequately configured or sized to accommodate maintenance of current commercial aircraft serving Logan Airport, a majority of which cannot fit inside the hangar. Second, removal of the structure will allow this the Authority to convert the space to additional aircraft apron, which has long been identified as a critical need for our space-constrained airport. Finally, the hangar has several structural deficiencies including the presence of hazardous materials (asbestos and PCBs). The building is under consideration for condemnation by Massport Fire/Rescue.

Because the hangar no longer is capable of serving its intended aircraft storage or maintenance purpose and since there is a critical need for aircraft parking area, remediation or restoration of the facility is neither cost-effective nor suitable to meet current airfield demands. Due to the presence of hazardous materials in the building, Massport will be initiating asbestos and pcb removal immediately.

In order to facilitate MHC's review of the proposed building demolition, please find attached the Project Notification Form as well as an inventory of the building (Form B) completed by Public Archaeology Labs (PAL). Please contact me with any questions at (617) 568-3524 or sdalzell@massport.com. We would be pleased to meet with you to discuss this application at your earliest convenience.

Brona Simon
August 1, 2014
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Sincerely,

Massachusetts Port Authority

A handwritten signature in blue ink, appearing to read "Stewart Dalzell", is written over a faint, light blue circular stamp. The signature is fluid and cursive.

Stewart Dalzell, Deputy Director
Environmental Planning & Permitting

Enclosures

cc: S. Dennechuk, L. O'Connor/Massport

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125
617-727-8470, FAX: 617-727-5128

PROJECT NOTIFICATION FORM

Project Name: American Airlines Hangar Demolition

Location / Address: 100 Service Road, Logan International Airport

City / Town: East Boston

Project Proponent

Name: Stewart Dalzell, Deputy Director Environmental Planning and Permitting

Address: Massachusetts Port Authority, Economic Planning and Development, One Harborside Drive Suite 200S

City/Town/Zip/Telephone: East Boston / 02128 / (617) 568-3524

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name

Type of License or funding (specify)

FAA

NEPA Categorical Exclusion

Project Description (narrative):

Massport proposes to demolish the defunct 70,000 sf American Airlines Hangar, which is no longer used for aircraft maintenance and is unused as of February of 2014. The hangar is proposed for demolition because 1) it is not adequate to accommodate maintenance of current aircraft, 2) the building contains asbestos and PCBs and would cost more to repair than to demolish and 3) removal of the structure will allow this the Authority to convert the space to additional apron, which is needed for overnight storage of aircraft.

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition. Yes. The project involves demolition of the existing American Airlines hangar at Logan International Airport. The hangar is no longer necessary for Massport operations and would be more costly to repair than demolish due to the presence of asbestos and pcbs. The structure may be condemned in the near futre.

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No.

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

No.

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APPENDIX A (continued)

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

What is the total acreage of the project area?

Woodland 0 acres
Wetland 0 acres
Floodplain 0 acres
Open space 0 acres
Developed 1.6 acres

Productive Resources:
Agriculture 0 acres
Forestry 0 acres
Mining/Extraction 0 acres
Total Project Acreage 1.6 acres

What is the acreage of the proposed new construction? 0 acres

What is the present land use of the project area?

The present land use of the area is as equipment storage and airplane overnight parking (on the adjacent apron) as part of the operation of Logan International Airport.

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.
attached.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form: _____ Date: _____

Name: Stewart Dalzell, Massachusetts Port Authority

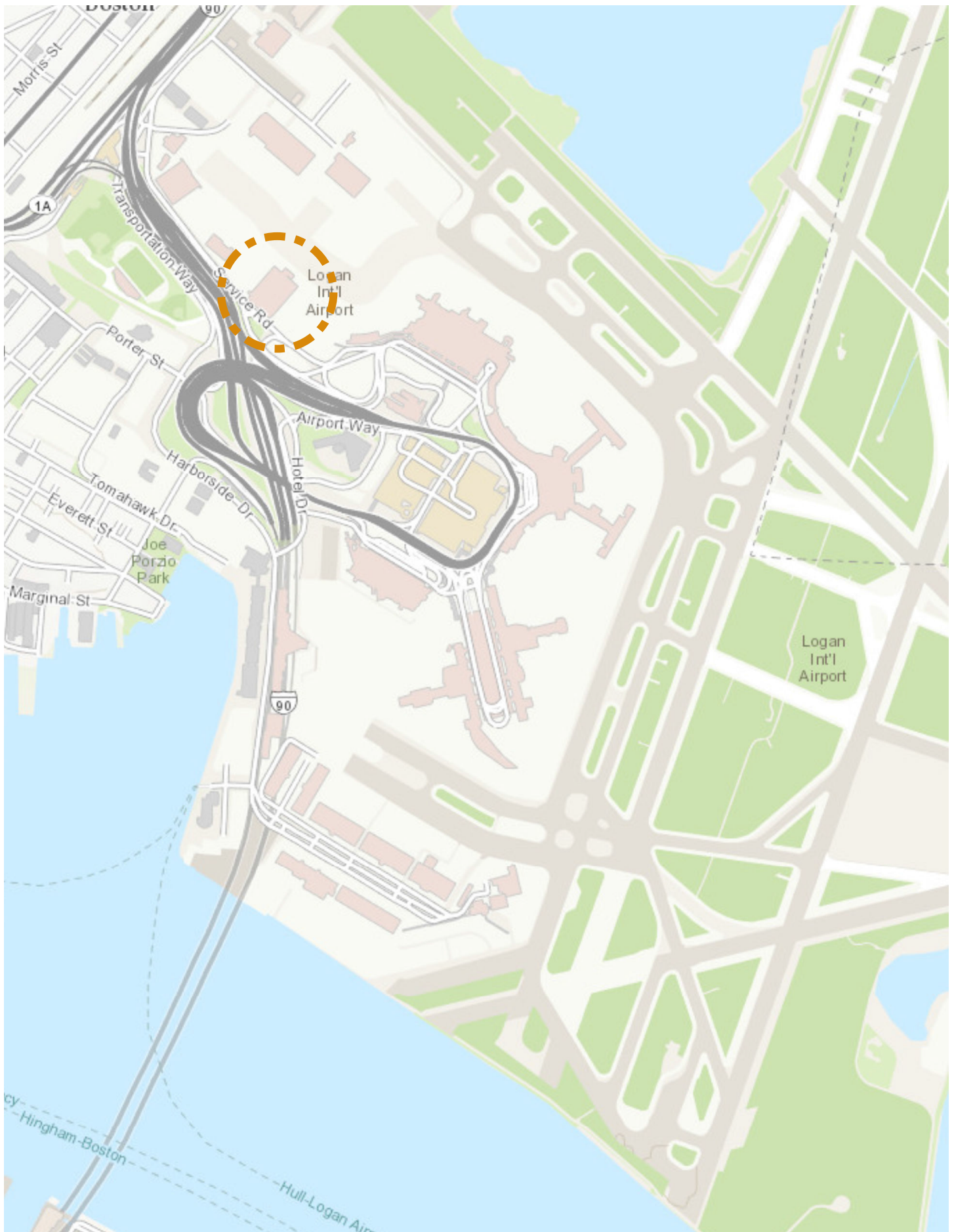
Address: Logan International Airport, One Harborside Drive

City/Town/Zip: East Boston, MA 02128

Telephone: 617-568-3524

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.



Massachusetts Port Authority
Economic Planning and Development
July 2014

Building 16 (former American Airlines Hangar)

Boston-Logan International Airport

FORM B – BUILDING

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

Photograph

Insert here or on a Continuation Sheet a digital photograph (either color or black and white).

*A paper photographic print (3½x5¼" or 4x6" must **also** be attached to the form in this space or to a Continuation Sheet. Prints, from a photo-quality inkjet printer, must use brand name paper and inks approved by MHC. Attached photographs should be clearly identified with town name and property address. See MHC's Guidelines for Inventory Form Photographs.*

Locus Map



Recorded by: Quinn R. Stuart and John J. Daly

Organization: PAL

Date (month / year): June 2014

Assessor's Number USGS Quad Area(s) Form Number

Boston
South

BOS.K

Town/City: Boston, MA

Place: (*neighborhood or village*): General Edward Lawrence Logan International Airport

Address: 100 Service Road, General Edward Lawrence Logan International Airport

Historic Name: American Airlines Hangar (Building 16)

Uses: Present: Storage

Original: Airplane Hangar

Date of Construction: 1953-1955

Source: Newspaper articles, plans

Style/Form: Mid-Twentieth-Century Modern Arched Hangar

Architect/Builder: Samuel Glaser & Associates, architects; Goldberg, LeMessurier & Associates, engineers; Farina Brothers, contractors

Exterior Material:

Foundation: poured concrete slab

Wall/Trim: corrugated steel, brick, and glass

Roof: corrugated steel panels

Outbuildings/Secondary Structures: None

Major Alterations (*with dates*):

Automobile Service Garage Addition, ca. 1975

Condition: Fair

Moved: no ☒ yes ☐ **Date:**

Acreage: 70,000 sq. ft.

Setting: The hangar is located on the northeast side of Service Road in the North Cargo Area at Logan Airport. It is surrounded by concrete and asphalt on the north, east, and west sides. A narrow strip of lawn and concrete sidewalk run along the south side of the hangar between the building and Service Road.

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☒ Recommended for listing in the National Register of Historic Places.

If checked, you must attach a completed National Register Criteria Statement form.

ARCHITECTURAL DESCRIPTION:

Site

The American Airlines Hangar (aka Building 16) is located in the North Cargo Area of Logan Airport, approximately 1,000 feet west¹ of Terminal E and 250 feet east of Building 13 (the former American Airlines Sky Chefs Facility). Paved aircraft circulation and tarmac areas surround the north, south, and east sides of the hangar, with the hangar's aircraft door elevations facing north and south onto concrete aprons. An aircraft taxiway runs near the east side of the building, and the tarmac immediately adjacent to the hangar along this wall is used as a service vehicle parking area. The west wall, which is the building's street facade, faces Service Road and the Cell Phone Waiting Lot (formerly a landscaped lawn in front of the hangar entrance). The airport's reinforced concrete security wall extends north and east from the ends of the building's west wall, and a narrow strip of lawn and a concrete sidewalk occupy the building's shallow street frontage.

American Airlines Hangar

Exterior

The American Airlines Hangar is a large, tied-arch (aka Quonset type) aircraft shelter set on a 357-by-242-foot footprint with a classic, tripartite half-shed or lean-to organization: the visually dominant arched aircraft bay flanked by two wings, designated on the original plans as the West Lean-To and the East Lean-To. The aircraft bay's arched roof, which rises to a maximum height of approximately 85 feet above grade, dominates the building, partially covering parts of the adjoining lean-tos and having projecting door enclosures that also flank the adjoining wings. An Automobile Service Garage, which is an addition on the east side of the building, has an approximately 125-by-35-foot rectangular plan and is connected to the Hangar's east elevation via a short, one-story, concrete block hyphen. The hangar and lean-tos are of concrete and steel frame construction enclosed with masonry walls and buff brick cladding. The Automobile Service Garage is a steel frame building clad in concrete block. The entire building rests on a concrete slab foundation.

Architecturally, the hangar's design is of utilitarian/industrial mid-twentieth century aesthetic, with modest Mid-Century-Modern stylistic influences. There is a heavy aesthetic emphasis on the articulation of wall planes accomplished through the contrast of broad expanses of buff brick against flush-mounted ribbon windows and concrete walls, and also through subtle planar shifts in the relationships of adjacent wall planes. The unrelieved wall surfaces emphasize the sculptural volumes of the aircraft bay and its door pockets, which contrast with and visually push against the flanking lean-tos. The use of industrial materials (namely brick and steel) is emphasized in a fashion typical for the style and is also appropriate to the function of the building.

The segmental-arch aircraft bay has a 265-foot-wide (east-west) by 242-foot-long footprint with the east and west sides covered by the lean-tos and the north and south end walls almost entirely taken up by the doors. The roof is clad in corrugated steel panels, and deep overhanging soffits clad in sheet metal overhang the end walls. A small antenna array and accompanying steel service stairs are mounted on the west roof slope. The electrically powered retractable doors occupy almost the entirety of the north and south elevations and provide a 40-foot vertical opening. Each door consists of two sets of six steel frame door leaves clad with welded sheet steel panels and expansive wire reinforced glass curtain walls, which are the aircraft bay's only fenestration. Paneled steel personnel doors and vertical lift vehicle doors are inset in the door leaves. Flanged steel door wheels

¹ The hangar is sited on a northwest-southeast axis. Original architectural plans designate the lean-to wings on the buildings as "east" and "west", so this convention is adopted for the building description.

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roll on tracks embedded in the hangar's apron. The doors collapse into flat roofed, brick clad door pockets that project from the four corners of the aircraft bay. Above the doors, the aircraft bay walls are corrugated steel. Steel stanchions for now-missing American Airlines corporate signs are fastened to the wall panels. A flat canopy with a pipe-rail catwalk runs across the top of the door, and flood lights are mounted above the catwalk. Enameled steel signs reading "Building 16" are bolted on the side walls of the door pockets.

A small one-story, one-by-one-bay storage room, designated the Sanitary Disposal Room on historical plans, projects from the west door pocket of the aircraft bay's north wall. This shelter has a flat concrete slab roof clad in tar and gravel and deep overhanging eaves topped with aluminum flashing. The masonry walls are clad in buff brick and rest on a concrete slab. Vertical lift vehicle doors occupy the shelter's east and west walls. The east door is wood; the west door is corrugated metal. The shelter's north end wall is blank. As built, only the roof of the Sanitary Disposal Room was connected to the hangar – its walls were free-standing. Wood frame and plywood enclosures now cover the originally open passage between the building and the north wall of the hangar.

The West Lean-To is a substantial, two-story, 65-foot-wide wing with a rectangular footprint running the entire length of the hangar. The flat tar-and-gravel roof has a flush mounted aluminum cornice and internal gutters. The long west wall faces Service Road and consists of a buff brick first story topped by a cantilevered second story supported on a tapered concrete slab. The hangar's primary pedestrian entrance is centered on the wall and consists of a pair of aluminum doors flanked to the west by a sidelight and topped with a transom light, all within a bronzed aluminum channel frame. An angled aluminum clad canopy shelters the entry and is supported by two steel struts extending from the second story cantilever. Continuous steel ribbon windows with operable hopper sash are mounted high on the first story, directly below the overhang, and run the entire length of the wall. A second, shorter ribbon window is set in the wall to the north of the entry. Both window systems are placed almost flush with the wall plane and surrounded by narrow steel frames. To the south of the entry is a loading dock with two vertical lift steel roll doors opening onto the sidewalk. The second story is entirely clad in a windowed, steel frame curtain wall. Each bay of the wall consists of (bottom to top): a painted steel panel, a pair of rectangular awning windows, and a fixed plate glass window. The glass is coated with a dark tint. The north and south walls are also clad in brick, with slightly recessed bays at the intersection with the aircraft bay door pockets. The north wall contains three garage bays separated by concrete posts and flanked by a steel slab personnel door. The second floor contains a large louvered vent flanked by a steel sash window. The east wall contains a single narrow ribbon window on the first story. The recessed bays on the north and west elevations bays are clad in brick on the first floor and concrete on the second story. Their first stories contain steel slab personnel doors and their second stories and have steel framed window panels.

The East Lean-To is a narrow one-story wing that is 18 feet wide and extends the entire length of the east wall of the hangar. The wing has a flat concrete slab roof with a tar-and-gravel coating, internal gutters, and a concrete fascia flashed with aluminum. The buff brick walls rest on an exposed concrete slab. Ribbon windows assembled from rectangular fixed and sliding steel sash units run below the fascia and are interrupted by steel slab emergency exit doors. The windows are flush mounted with the walls and have a continuous, shallow aluminum sill. Concrete utility vaults project from the foundation slab at grade.

The Automobile Service Garage is a 3-by-4-bay, one-story, high-bay concrete block addition used for repair and upkeep of aircraft service vehicles. The flat roof is sheathed with rubber roll roofing and has an aluminum-clad cornice. Four sheet metal vents project from the roof interior and a large sheet metal HVAC enclosure is mounted on the west corner of the roof deck. The building faces east toward the taxiway, and the east wall contains four vertical lift roll doors – one original steel unit and three replacement vinyl units. The south wall contains a steel slab personnel door and three irregularly spaced window openings on the second floor that are punched into the wall surface and fitted with aluminum sash awning units. The north wall contains two steel vertical lift roll doors flanked by a steel slab personnel door. A double-hung vinyl replacement window is mounted high on the wall in an original opening above the personnel door.

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Interior

The interior of the hangar proper is a single 265-foot-wide by 242-foot-long open-plan bay with approximately 70 feet of clearance from grade to the crown of the arches. Framing is exposed throughout the building. The frame consists of eight massive, built-up, riveted steel girder arch ribs, spaced 40 feet on-center (except for the end pairs, which are spaced 20 feet on-center). The ribs have a 50 inch web and an 18 inch flange. The ribs terminate at hinges bolted to concrete skewbacks that are located in rooms of the two lean-tos. The tied-arches' tension members are placed below the floor slab and consist of pre-stressed concrete ties with a 20-by-20-inch section. Three 1 3/8-inch steel tensioning cables run through the beam and are anchored into the skewbacks. The girders are stiffened with longitudinal Pratt trusses (which are covered with sheet metal draft curtains) and diagonal steel I-beam cross bracing. The girders and a secondary system of I-beam ribs resting on the trusses support steel purlins, to which is bolted the roof deck. The ceiling is a corrugated steel roof pan, the east and west side walls are concrete block, and the floor is a poured concrete slab. Walls above the aircraft doors are assembled from a steel I-beam frame braced with diagonal struts fastened to the arch ribs. A combination of rolling and hinged metal-clad doors provides access from the aircraft bay into the East and West Lean-Tos. Halogen pendant lights illuminate the interior. De-icing units and other maintenance vehicles are currently stored in the bay.

The East Lean-To interior is organized as a single row of rooms divided from one another by painted concrete block walls and the exposed poured concrete and steel frame. Ceilings consist of the coffered underside of the pre-cast concrete roof slab. Floors are a poured concrete slab. The rooms at either end of the East Lean-To are topped with storage mezzanines. All of the rooms are currently vacant.

The first floor of the West Lean-To consists of an entry foyer flanked by two groups of interconnected storage and service rooms, each with a different irregular plan. The foyer has an acoustic tile drop ceiling with recessed fluorescent strip lighting. The walls are painted concrete block and gypsum board, and the floor is vinyl tile. A free-standing, poured concrete dog-leg stair with welded pipe railings rises from the west side of the foyer. The architectural treatment of the storage and service rooms is similar to that of the East Lean-To, but some partitions are assembled from studs and gypsum board. Steel slab doors provide circulation between the rooms. The second floor is organized along a longitudinal (north-east running) double-loaded corridor. The corridor has an acoustic tile drop ceiling, concrete block walls, and a vinyl tile floor. Multiple steel slab doors access office suites and a large crew locker room. Modular metal and glass partitions divide the office suites into work areas. The ceiling tiles, carpet, and trim have been removed. The West Lean-To's first story rooms were originally used for storage and shops and are all now vacant. The second story rooms were used for offices, crew break rooms, and storage. They are also vacant.

A concrete block corridor extends through the East Lean-To into the Automobile Service Garage. This space contains four high-bay service areas and a mezzanine with a stock enclosure and office. The architectural treatment is strictly functional, with an exposed corrugated roof pan and bar trusses, painted concrete block walls, and a painted concrete floor. Halogen lighting pendants are suspended from the ceiling. The stock enclosure is a chain link pen and the office is enclosed with modular steel panels. No equipment is retained in the building.

Alterations and Integrity

A review of historic plans on file with Massport shows that alterations to the American Airlines Hangar have been modest. The majority of the changes were upgrades and modifications to the building's heating and cooling, communications, and electrical infrastructure. The most substantial alteration was the addition of the Automobile Service Garage between 1971 and 1978. Circa 1983, the Automobile Service Garage, one suite in the West Lean-To, and one room in the East Lean-To were remodeled. Prior to 1986, a cutout was made in the west elevation above the hangar doors to accommodate the tails of larger aircraft. These cutouts contain doors made of a similar material to the exterior cladding. About 2000, four rooms on the first floor of the West Lean-To were remodeled for use as Aircraft Maintenance Offices. The glass of the hangar doors and ribbon windows was partially replaced in 1990. Additional undocumented changes observed in the hangar and its setting include the removal of the majority of the west lawn between 1995 and 2000, the removal of the American Airlines signs, replacement of vehicle doors as

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noted, and the removal of ceiling tiles and carpet in the administrative suites (F.A. Norris & Associates 1983; Gresham, Smith and Partners 2000; HistoricAerials.com 1971, 1978, 1995, 2005; Massport Engineering Services 1990a, 1990b).

The alterations to the American Airlines Hangar have resulted in minor changes to the setting of the building and its associations with American Airlines. The discontinued use of the hangar for aircraft servicing has also resulted in a modest diminishment to the feeling of the hangar as an aviation-related facility. However, the hangar still retains its overall integrity. The building is in fair condition. Condition problems include roof leaks in the Lean-Tos that have damaged interior finishes, broken and missing window panes, extensive cracking and missing bricks in the exterior masonry walls, severely degraded and missing exterior metal trim (including the lower panels of the aircraft doors and hangar roof soffits), and latent hazardous materials consisting of asbestos and PCB's.

HISTORICAL NARRATIVE

Civil Aviation Boom

The American Airlines Hangar at Logan International Airport (Logan) was constructed at the dawning of the jet-age of commercial airlines in the post-World War II era. During the war, civilian aviation had virtually ceased, but research and development of aircraft and technology advanced substantially during war time. In the decades after World War II, American airline operators in the United States, including American Airlines, invested substantial sums of money to advancing aircraft technology, far surpassing the air transit operators of Europe. Civilian aircraft developed after the war benefited from improved navigation technology and communications equipment. Their fuel capacity was four or five times that of the pre-war period, allowing continuous transcontinental flights without re-fueling, which significantly shortened trips. Pressurized cabins permitted higher altitude flying and, along with improved aircraft motors, contributed to a smoother and quieter passenger experience than in the pre-World War II period. The new aircraft became so successful that United States airline companies began to dominate the long-range transportation market. As a result, the demand for air transportation steadily grew both for passengers and freight and won over the rail transportation market. By the early 1950s, aircraft took over as the major means of long-range travel in the country (Chant 1978).

In the early 1950s, American Airlines used a fleet of the leading commercial aircraft of the period, prop-driven Convair 240 and 340 aircraft for shorter flights and Douglas DC6 and DC7 aircraft for long-range trips. These planes could hold, on average, 70 passengers and fly faster than their predecessors for both intercontinental and transcontinental flights. Air carriers, including American, Northeast, Eastern, and Trans World (TWA) airlines, introduced the "coach class," which became popular among middle-class travelers as a more affordable way to fly. The combination of new plane designs that could hold a larger number of passengers, the introduction of lower fare prices, and the speed in which one could reach their destination led to a surge in travelers in the early and mid-1950s. Existing airports, including La Guardia in New York, NY, Midway in Chicago, IL, Newark in Newark, NJ, and Logan in Boston, MA, expanded their facilities to accommodate the growing number of aircraft. The *Daily Boston Globe* reported that, "in nine years, the number of scheduled aircraft using Logan Airport annually has grown more than 60 percent, from 55,823 in 1948 to 92,145 in 1955" (Tarbi 1957:19). Several new airports, including International in Los Angeles, CA, O'Hare in Chicago, IL, and Idlewild (later known as JFK) in New York, NY, were constructed in the 1950s with innovative designs for larger terminals and higher-capacity runways. In 1958, the United States long-range airline operators, including American, began integrating the newly launched jet-powered planes into their existing fleets with the Boeing 707. The introduction of new larger, heavier aircraft required longer runways and larger facilities, which, along with the larger volumes of travelers, spurred another phase of renovation and upgrade programs at major airports across the country; including at Logan Airport in Boston, MA (Chant 1978; *Daily Boston Globe* 1953; Solberg 1979:361-363; Tarbi 1957:19).

American Airlines

In 1929, the Aviation Corporation was created to acquire small, young aviation companies across the United States. This corporation consolidated into American Airways, Inc., renamed American Airlines, Inc. (American), in 1930. By the end of the decade, American was the nation's largest domestic passenger air carrier, headed by President C.R. Smith. Over the course of

Continuation sheet 4

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Smith's 35-year career with the company, he pioneered the use of heated in-flight meals, the training of flight attendants, discounts for frequent flyers, assertive advertising campaigns, improved passenger reservation systems, and better air-traffic controls. In 1927, Colonial Air Transport established the first regularly scheduled commercial passenger flight from Boston to New York. American acquired Colonial Air Transport in the 1930s. By 1944, American was one of two major airlines operating out of Logan airport; Northeast airlines offered flights to Maine, New Hampshire, Vermont, and Canada while American continued its daily flights to New York. The company also expanded in 1944 to include air freight. In 1945, American introduced the airline's first trans-Atlantic service to Europe under their subsidiary American Overseas Airlines (AOA). The company began their first non-stop transcontinental jet-powered service across the United States in 1959, solidifying their place as a leader in commercial aviation into the late twentieth century. American Airlines was considered one of the "big-four" domestic commercial operators in the "Golden Age" of passenger service in the 1950s and 1960s along with Eastern Air Transport, TWA, and United Air Lines. The airline continues to be a major domestic and international carrier and to provide service at Logan Airport (AvStop.com 2014; Serling 1985; Solberg 1979).

Development at Logan in the 1950s and 1960s

The Lt. General Edward Lawrence Logan International Airport originated as a small military airfield in the early 1920s used primarily by the Massachusetts Air Guard and Army Air Corps. In 1925, the first commercial hangar was constructed by the Boston Aircraft Corporation. The Massachusetts Legislature took control of the airport from the military in 1929 and leased it to the City of Boston. Improvements were completed in the 1930s and early 1940s, including lengthening runways, paving access roads, landscaping, and the filling of approximately 2,000 acres of land. By the end of the 1940s, the passenger volume at Logan lagged behind other airports and it "decreased from ninth to twentieth among airports in the United States in terms of flight operations" (VHB 1993:A3.3). The facilities built earlier in the century were unable to accommodate the passenger volume of larger planes introduced after World War II. Logan management constructed the Boutwell Terminal in 1948-1949 to help alleviate the growing population of air travelers and provide the maximum number of plane loading positions. An eight-story air traffic control tower was built on the south side of the passenger terminal in 1955. When constructed, the tower had an observation room and antenna on the roof. Construction of the current air traffic control tower in the 1970s resulted in removal of the observation room and conversion of the "old tower" to administration offices. The first permanent heating plant system was built throughout the airport during this time of great expansion (VHB 1993:A3.1-4; Vollmer Associates 1993).

New, larger hangars constructed at Logan in the 1950s accommodated the growing size of passenger and cargo fleets. A *Daily Boston Globe* article in 1957 describes the need to construct four, 500,000 square-foot hangars for Northeast, Eastern, National and TWA, which were all in the process of expanding their airplane fleets, and the airlines' 1920s hangars were grossly inadequate for their needs. Northeast Airlines insisted on the construction of a hangar at Logan or the airline would be forced to base their new planes elsewhere. The article reported that "only one hangar has been constructed at Logan [between 1948 and 1955]...currently occupied by American Airlines," and "the last important phase of hangar development took place back in 1928-29" (Tarbi 1957:19). The hangar built for American in 1953-1955 was one-and-one-half-times the size of the five 1920s hangars combined. By 1959, the state accepted bids for the construction of four additional hangars at Logan airport (*Daily Boston Globe* 1958:44; Tarbi 1957:19).

In 1960, as larger jet-powered planes dominated long-range travel, the main terminal building was expanded to include a new terminal, Terminal C, at the north end of the building and T-shaped loading piers off the main terminal space. In 1968, a parking garage was built immediately west of the main terminal to accommodate the increased numbers of automobiles for passengers and staff at the airport. In 1969, the *Boston Globe* reported that between 1959 and 1969 new additions to the airport included the following:

A new general aviation headquarters space for such craft...new runways, taxiways and plane parking aprons; installation of modern flying and landing equipment; a new international terminal (it has had two additions), a North terminal for United, Trans World and Northeast Airlines; construction of four passenger finger piers for all domestic air carriers...a new control tower; a new restaurant; a new passenger terminal with parking for more than 1000 autos for Eastern airlines; hangars for Eastern, American, TWA, Northeast Airlines; air cargo

Continuation sheet 5

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freight facilities; a three-story, 3,180-car garage; a two-level roadway system; maintenance and fire protective facilities; and ultra modern power and air conditioning plant, and the beginning of a \$125 million development of the Bird Island Flats into a large jet plane hangar and maintenance complex (Hammond 1969:A3).

American Airlines Hangar

In the early 1950s, American Airlines came to an agreement with the Massachusetts State Management Board to construct a hangar at Logan Airport. The proposed hangar would cost \$2.5 million, which would be completely financed by the airline, and leased by American for a 25-year term. The American Hangar, now known as Building 16, was constructed in 1953-1955 during the expansion of Logan Airport for commercial passenger service. It was the first new permanent hangar constructed at Logan in approximately 20 years. Numerous hangars were constructed during the late 1920s, but they were too small and in poor condition by the 1950s. The American hangar was designed to be one of the largest and “most modern on the Atlantic seaboard” with the capacity to hold “six two-engine Convairs or four four-engine DC-6s” (*Boston Daily Globe* 1953). The design also included space for maintenance shops, administrative offices, and classrooms within concrete-block lean-tos on either side of the hangar. In 1953, American president C. R. Smith attended the hangar ground-breaking ceremony with then Massachusetts governor Christian Herter (*Boston Daily Globe* 1953; *Daily Boston Globe* 1955:6; Tarbi 1957:19).

The American Hangar was designed by Modernist architect Samuel Glaser (1902-1983) of the prominent Boston-based firm of Samuel Glaser Associates. Glaser earned both his Bachelors and Masters of Architecture from the Massachusetts Institute of Technology (MIT) in 1925 and 1926. He established Samuel Glaser Associates in 1930 and designed multiple private residences in the greater Boston area through the 1930s and into the 1940s. Glaser also designed the terminal’s “old tower” and a hangar for Northeast Airlines (still extant) in 1959 located north of the American Hangar. Glaser Associates designed facilities at several military bases throughout Massachusetts, including three utility and fuel storage facilities at the Boeing Michigan Aeronautical Research Center (BOMARC) at Otis Air Force Base in Sandwich ([SDW.1014](#), [SDW.1016](#), and [SDW.1017](#)) (all demolished) and the landscape plan at the Natick Research and Development Laboratories in Natick ([NAT.D](#)). Glaser, who retired from his firm in 1975, is best known for his design of the John F. Kennedy Federal Building (1966) ([BOS.1617](#)), Government Center Parking Garage (1966) ([BOS.2024](#)), and the Woolworths Building (1967) ([BOS.2117](#)), all in Boston. He is also credited as the first architect to use airspace over highways for construction, as practiced in his design of the Shaws/Star Market (1963) over the Massachusetts Turnpike (Interstate 90) on Austin Street, Newton, MA (AIA 1956, 1962, and 1970; *Boston Globe* 1963:52; *New York Times* 1983).

The American Hangar’s structural system was engineered by Goldberg, LeMessurier & Associates of Boston, MA. Albert Goldberg (1909-2000) was born and raised in the greater Boston area and earned his bachelor’s degree at MIT. William LeMessurier (1926-2007) attended Harvard University and later earned his Master’s degree in building engineering and constructing at MIT in 1953. LeMessurier worked part-time for Goldberg while attending MIT and joined the firm full-time after graduation. He became a partner by the mid-1950s. The partnership lasted until 1961, when they split becoming Albert Goldberg Associates and LeMessurier Associates. Albert Goldberg Associates continued practicing in Boston, involved with the construction of the Government Center Parking Garage (1966), until Goldberg retired in 1974. LeMessurier established LeMessurier Associates with partners William Thoen, Emil Hervol, and James Collins, which is still functioning under the name “LeMessurier” in Boston. LeMessurier became world-renowned as one of America’s best known skyscraper designers. LeMessurier Associates engineered, among others, Boston City Hall (1961-1968) ([BOS.1657](#)) and the State Street Bank Building in Boston, the Citicorp Tower in New York City, NY, and several high-rises in Egypt and United Arab Emirates (*Boston Globe* 2000:B6; Weingardt 2012).

Tied Rib Arch Hangar Construction

The American Hangar at Logan utilizes a steel tied-arch frame incorporating two-hinged steel girder arch ribs and prestressed cable ties. At the time of its completion, the *Daily Boston Globe* reported the hangar was “considered to be the biggest hangar of its type...[and] is unique in design, drawing its support from underground tensioned steel rods imbedded in concrete beams, a radical departure from the conventional type [of hangar] erected in this part of the country” (*Daily Boston Globe* 1955:6).

Continuation sheet 6

INVENTORY FORM B CONTINUATION SHEET

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Hangars were necessary from the earliest years of powered flight as a place to shelter aircraft maintenance activities or to simply house the aircraft while not in use. The essential problem was to provide space of sufficient clear span to house the aircraft fuselage and wings. Airport and aircraft operators at first built simple sheds or barn-like enclosures, but soon hangar engineers adopted the structural systems of the arch and truss, which were already widely employed in other industrial building types and in bridges, to provide clear span areas of sufficient size to house the aircraft of the day. By the late 1920s, hangar engineers had developed several hangar forms with arches and trusses of wood, metal, and concrete that were codified and promulgated in professional trade journals and publications (Duke 1927:25-28; Eggebeem 2007:22).

Among the structural systems employed for hangars was the tied arch, in which a horizontal member (the ties, or beams) acting in tension, connect the two ends of an arch. The ties, which counteracted the thrusting of the arch, minimized the bearing requirements of the arch abutments and thereby allowed for smaller, less costly abutments and, in smaller buildings and structures, the use of prefabricated arch ribs or trusses. First recognized in the Renaissance period, the tied arch was popularized in the United States by Squire Whipple (1804-1888), who introduced his “bowstring” arched truss bridge in 1840. Whipple’s design and numerous variations introduced by other engineers were widely used during the nineteenth century for bridges, as well as train sheds and other curved vault structures of up to about 100 feet in span. This form of truss, mounted atop wood or metal wall framing, was commonly used in twentieth-century airplane hangars and reached spans of up to 200 feet. Improved structural modeling and the introduction of high-strength steel and reinforced concrete prompted engineers to revisit the tied-arch system for structures of even longer span which, rather than employing a truss, would be combined with solid arch ribs (Aaron 2011:Appendix C; Condit 1961:37-39; Duke 1927:25-28; Froesch and Prokosch 1946:192; Parsons Brinckerhoff and Engineering and Industrial Heritage 2005:3-22, 3-45, 3-69).

Rib arch structures with arches that continue all the way to grade had emerged in the United States in the mid-nineteenth century for use in balloon train sheds and became popular throughout the twentieth century as an ideal form to support vaulted roofs of wide spans, especially in geographical areas where wind and snow loads were a factor. As the length and wingspan of civilian and military aircraft increased in the 1930s and 1940s, the rib arch hangar, built with two or three hinges, became one of the favored solutions for both civilian and military hangars due to the practically unlimited open spans that could be created to house aircraft. Also, at spans exceeding 250 feet the cost effectiveness of trusses, arched or otherwise, diminished. Most rib arch structures utilized large abutments or battered piles to take the thrust of the arches, but where soil conditions did not provide sufficient bearing strength for cost-effective or practical abutments (as with the fills at Logan Airport), engineers returned to the tied arch system and incorporated the arch ties below a building’s floor slab. Hangar engineers during the 1940s and 1950s responding to the demands of increased aircraft sizes designed and built a series of ever-larger rib arch hangars in their traditional and tied arch variants with spans comparable to or exceeding the American Hangar. In Massachusetts, some of the largest documented aircraft hangars are five buildings of steel-arch construction measuring approximately 272 feet by 229 feet in plan and built in 1941 at the Westover Air Base in Chicopee, MA in 1941 (MHC Nos. CHI.737-CHI.741). The largest recorded hangar using a two-hinged arch system was the Navy’s Coastal Patrol Blimp hangar in New Jersey constructed during World War II that had a clear span of 328 feet and a height of 184 feet. Almost all the of the tied, rib arch hangars constructed around the time of the American Hangar used unstressed steel tie rods. Research has identified only one other contemporary hangar in the United States (completed in 1953 at an unspecified Air Force base) from the 1950s that used prestressed steel cable in the arch ties. This was a means to eliminate elongation that would have occurred had standard structural steel tie bars been used (Aaron 2011:4.14; Campbell 1953:48; Condit 1961:37-39; *Engineering News Record* 1954:33, 1956:42; Froesch and Prokosch 1946:192, 198; Parsons 1995; Pedrotty et al. 1999; Li 1960:94-104).

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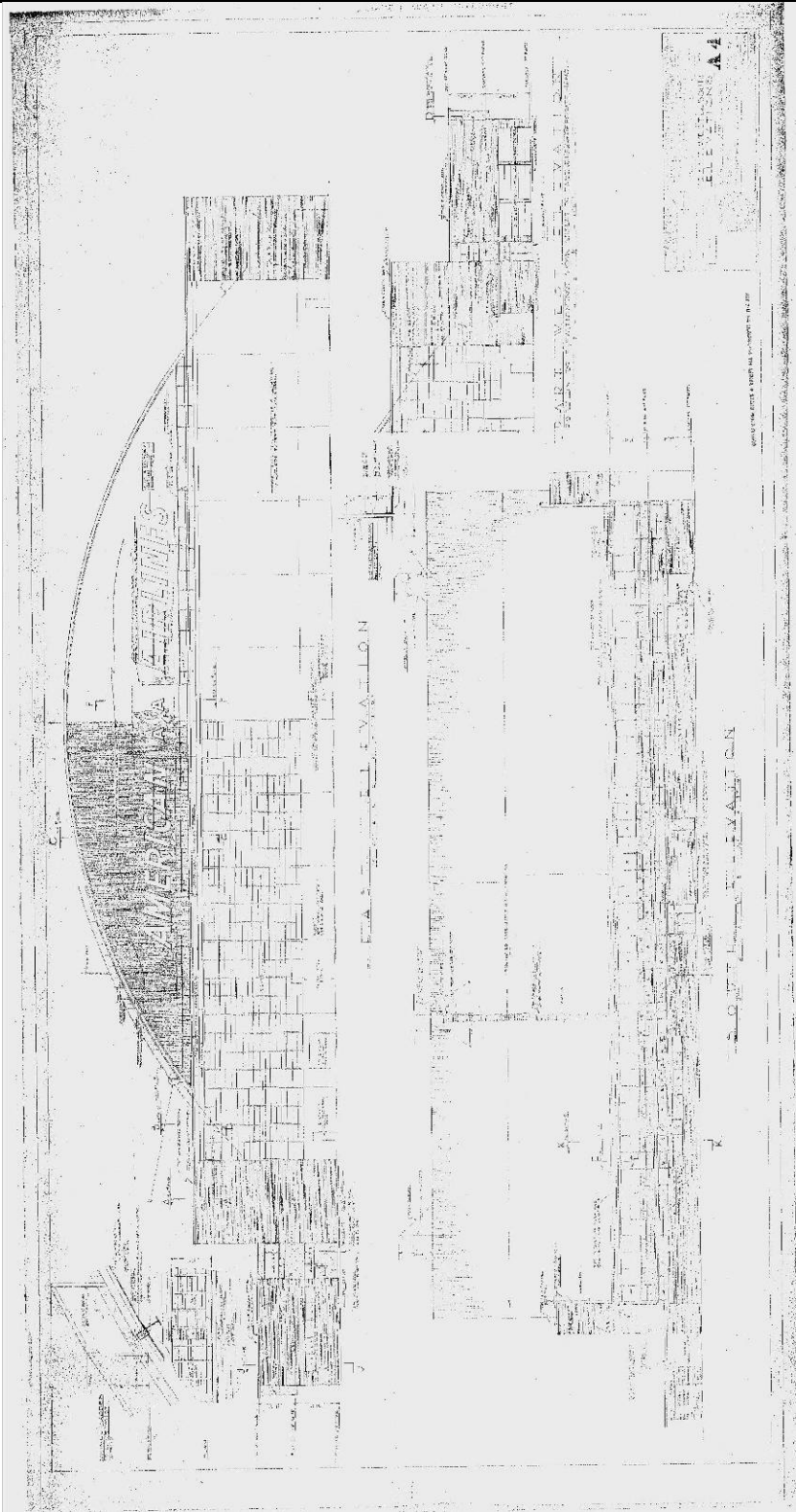
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Plan of American Hangar’s east and west elevations (Samuel Glaser Associates and Goldberg, LeMessurier & Associates 1953).

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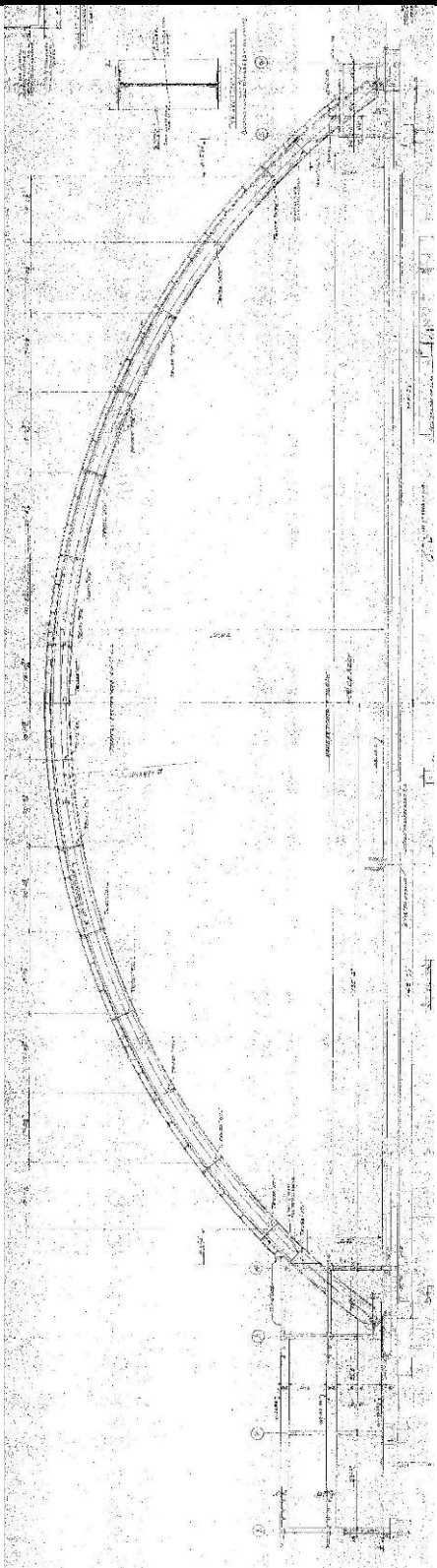
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Cross section of American Hangar (Samuel Glaser Associates and Goldberg, LeMessurier & Associates 1953).

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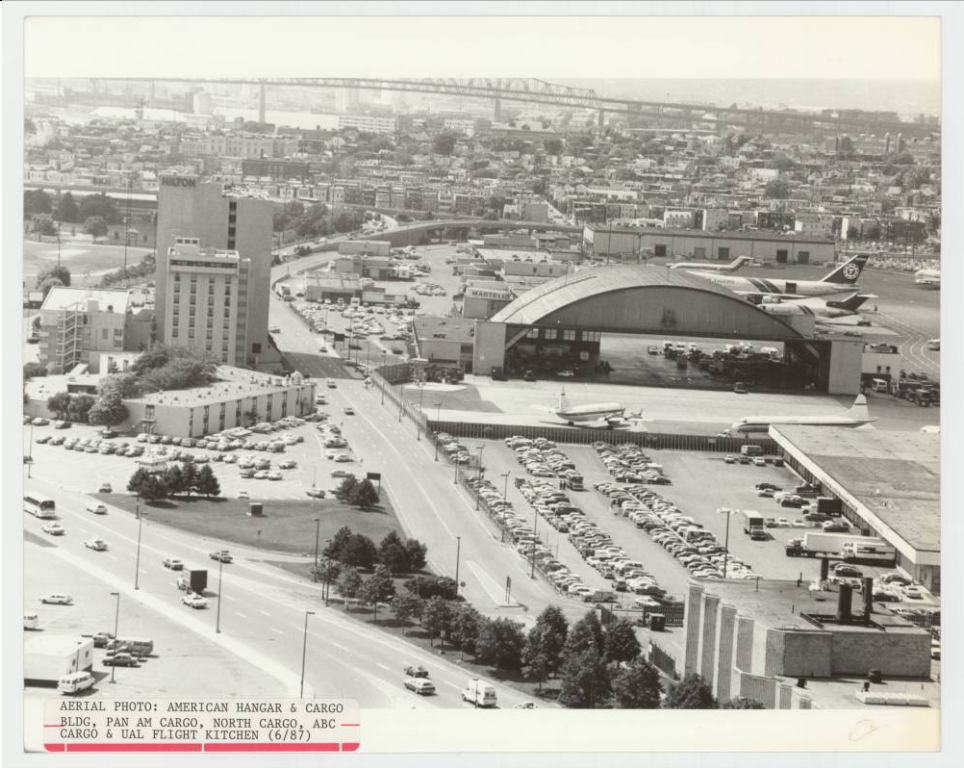
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View of American Hangar, looking north circa 1987 (on file, Massport).



1. View northwest of the south and east elevations.

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2. View southwest of the north and east elevations.



3. View northeast at the west and south elevations.

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4. View southeast at the north and west elevations.



5. Detail, view northwest of south elevation doors.

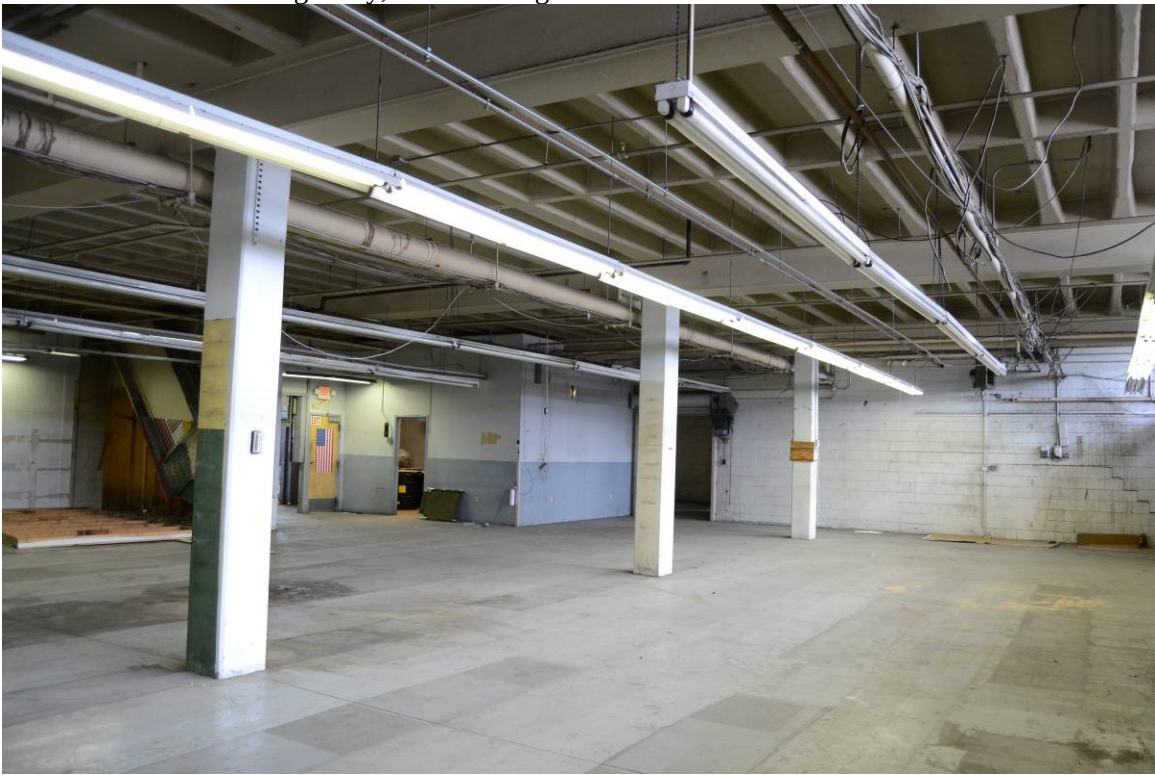
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6. Interior of aircraft hangar bay, view looking northeast.



7. First floor, interior of West Lean to, looking southeast.

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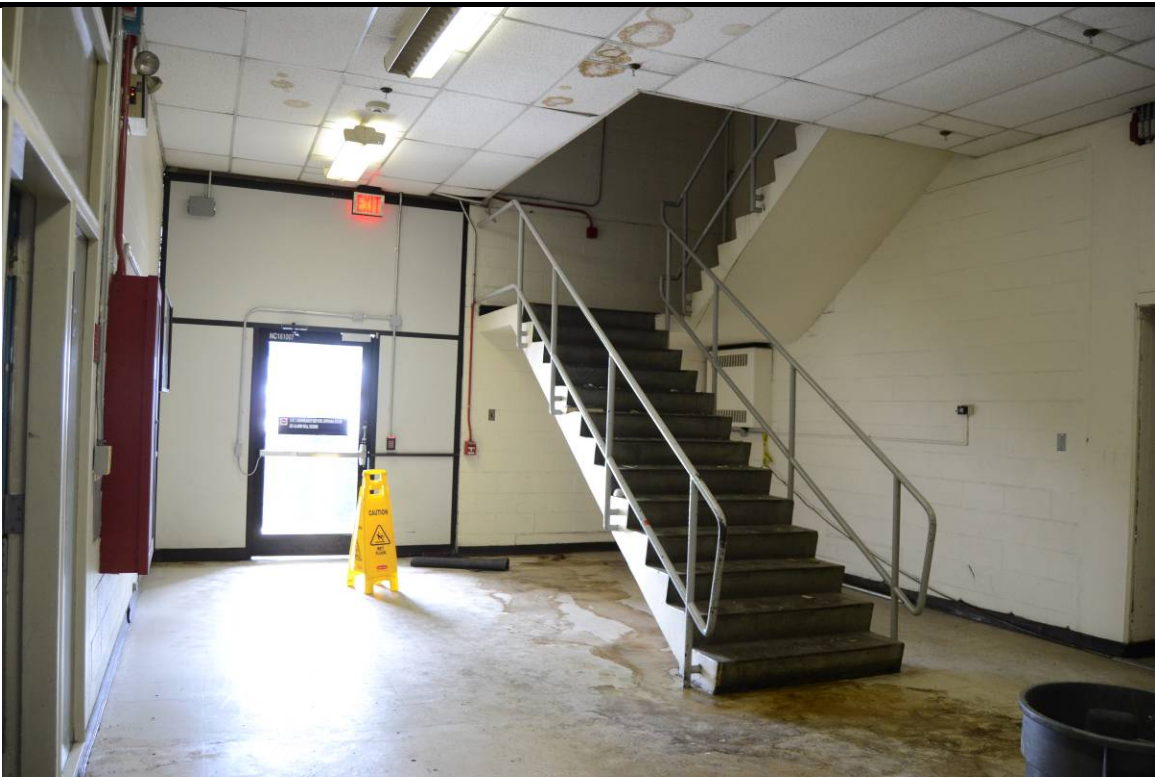
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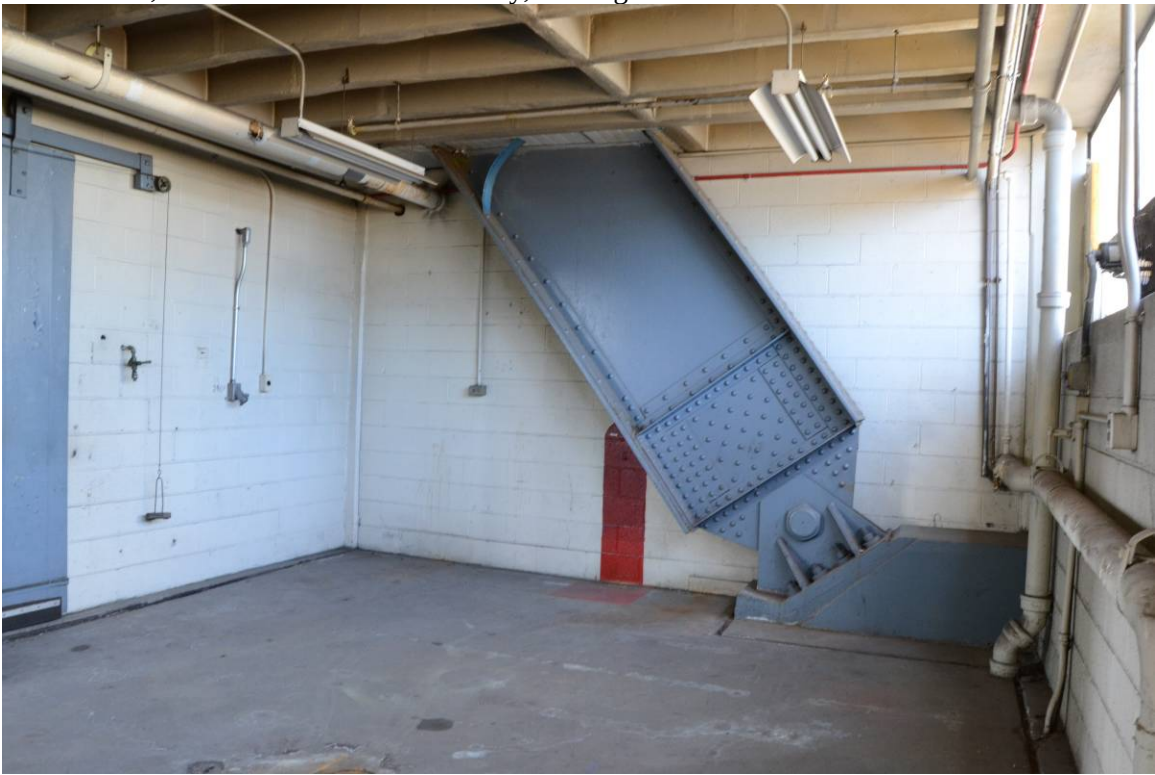
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8. First floor, interior of West Lean-to lobby, looking west.



9. First floor, interior of East Lean-to, looking northwest.

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Community
EAST BOSTON/LOGAN AIRPORT

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National Register of Historic Places Criteria Statement Form

Check all that apply:

- ☒ Individually eligible ☐ Eligible **only** in a historic district
- ☐ Contributing to a potential historic district ☐ Potential historic district

Criteria: ☒ **A** ☐ **B** ☒ **C** ☐ **D**

Criteria Considerations: ☐ **A** ☐ **B** ☐ **C** ☐ **D** ☐ **E** ☐ **F** ☐ **G**

Statement of Significance by Quinn R. Stuart and John J. Daly, Public Archaeology Laboratory, Inc., Pawtucket, Rhode Island

The criteria that are checked in the above sections must be justified here.

The American Airlines Hangar at Logan International Airport is eligible for listing in the National Register of Historic Places at the local and possibly state levels under Criterion A in the area of transportation and under Criterion C in the areas of architecture and engineering. Under Criterion A, the hangar is significant due its associations with the expansion of civil aviation at Logan Airport in the mid-twentieth century – an important trend in Boston’s development. The Commonwealth of Massachusetts constructed the American Hangar in 1953-1955 for lease by American Airlines during the commercial aviation boom after World War II. The hangar was the first major new infrastructure improvement to be constructed by the state at Logan and the first building constructed during an approximately 14 year-long building boom at the airfield that included additional hangars, a passenger terminal, and an aircraft control tower. This expansion program would solidify Logan Airport’s status as the state’s most important civilian air terminal. American Airlines, which was one of the “big four” airlines of the period, was one of the earliest civilian carriers to establish a presence at Logan Airport and was in the midst of a substantial expansion of both transcontinental and intercontinental air travel at the time that it requested the construction of its Logan hangar. The hangar, whose importance to the American Airlines was recognized by its president, C.R. Smith, was designed to house the airlines most advanced aircraft of the 1950s, along with corporate offices and maintenance shops.

Under Criterion C, the American Airlines Hangar is significant as a work of prominent Boston architect Samuel Glaser; as an engineering work by the firm of Goldberg, LeMessurier & Associates; and as an outstanding example of rib arch construction incorporating unusual prestressed ties. Although his contributions to Boston architecture have not been fully evaluated, Modernist architect Samuel Glaser (1902-1983) is known for designing a number of landmark structures whose Mid-Twentieth-Century Modern and sometimes Brutalist aesthetic have made a significant impact in Boston. Apparently favored for the design of large-scale infrastructure, his works include a second hangar and the earlier air

traffic control tower at Logan Airport, John F. Kennedy Federal Building (1966), Government Center Parking Garage (1966), and the Woolworths Building (1967). The engineering firm of Goldberg, LeMessurier & Associates brought together the talents of Albert Goldberg (1909-2000) and William LeMessurier (1926-2007), both important Boston engineers. LeMessurier would later achieve renown as one of America's greatest designers of tall buildings. The hangar embodies the distinctive characteristics of rib arch hangar design from the mid twentieth century and, because of its size and use of prestressed ties, is an outstanding example of the structural type. Although not the largest of the type to be built during the period, it is one of the largest in New England and exemplifies the spirit of hangar design during the 1950s, when engineers were seeking to achieve ever-larger clear spans to accommodate the most advanced passenger aircraft of the day.

The American Hangar is in fair condition but retains its integrity, having undergone few modifications that detract from its associations with passenger transportation or from its status as an important engineering and architectural work. The documented alterations to the Hangar include heating and cooling and utilities upgrades, minor window replacement, the Automobile Service Garage addition, and modifications to the setting of the building. The building is no longer used for aircraft maintenance, but its design and overall setting at Logan Airport convey its historical function and therefore its important associations.